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**Mathews et al.**

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(54) **SEALING COVER FOR CONCRETE ANCHOR**

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***E04C 5/12*** (2006.01)

(52) **U.S. Cl.**
CPC ..... ***E04C 5/122*** (2013.01)

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CPC . E04C 5/122; E04C 5/12; E04C 5/161; E04C 5/125; E04C 5/08; E04G 21/12; Y10T 24/3909
See application file for complete search history.

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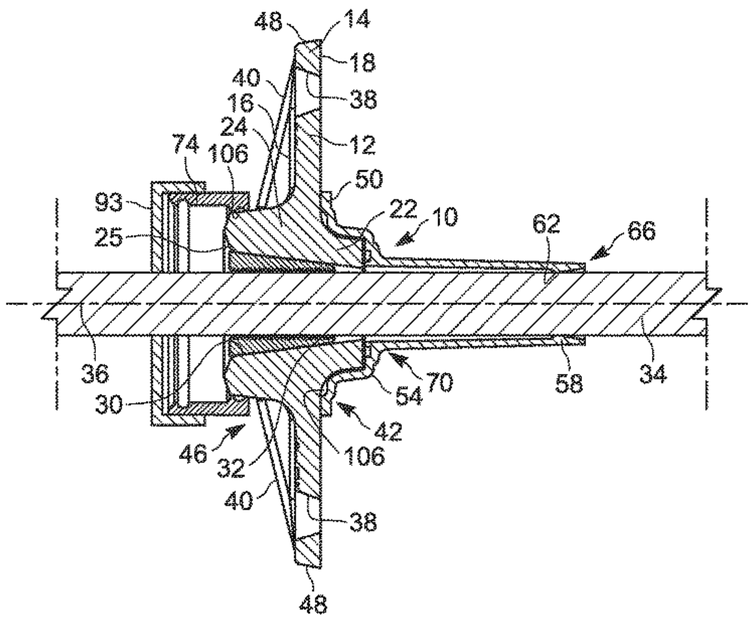
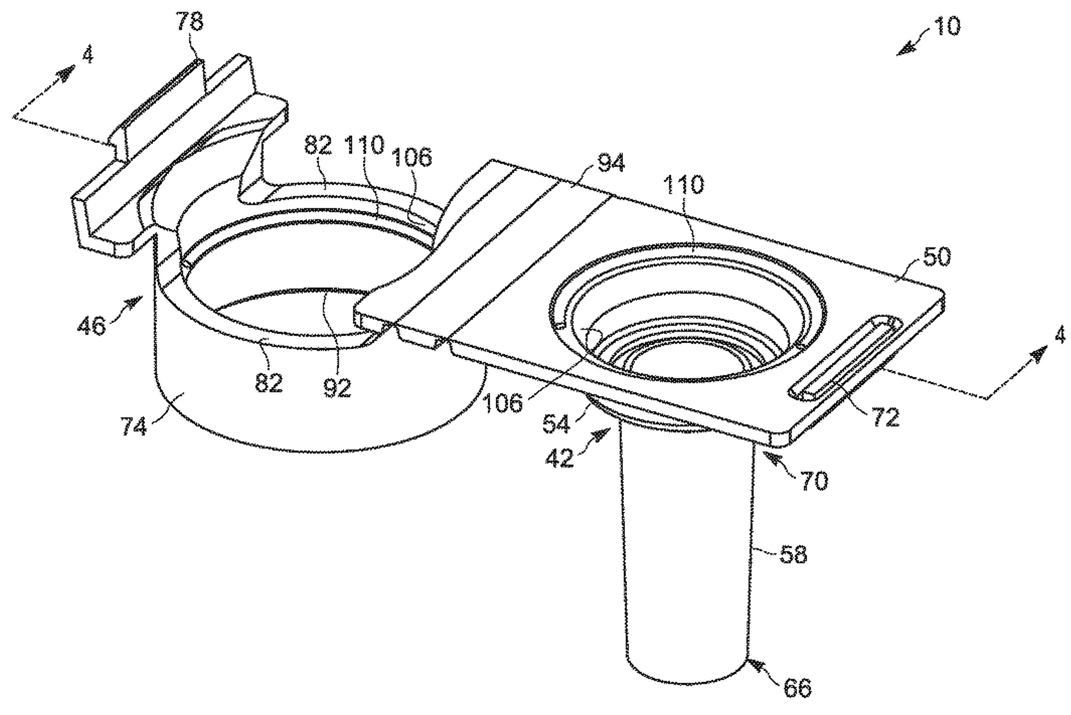
(57) **ABSTRACT**

A cover is provided for sealing a concrete anchor including a flange and a bore extending through the flange. The bore defines an axis and the flange has a first side and a second side. The cover includes a first cover portion for covering a portion of the anchor proximate the first side of the flange, a second cover portion for covering a portion of the anchor proximate the second side of the flange, and a latch coupling the first cover portion and the second cover portion together with the anchor disposed between the latch.

**27 Claims, 9 Drawing Sheets**



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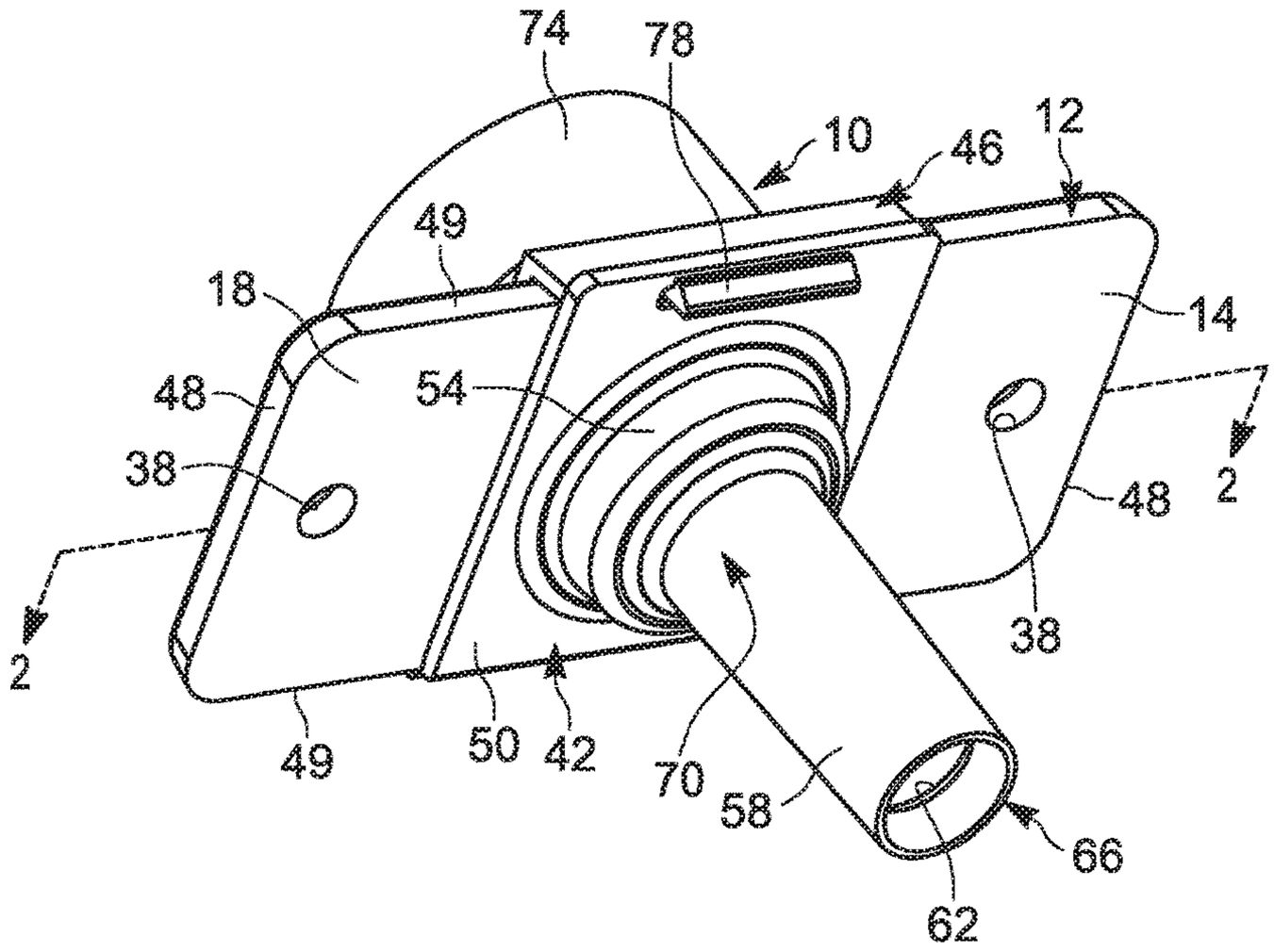
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FIG. 1

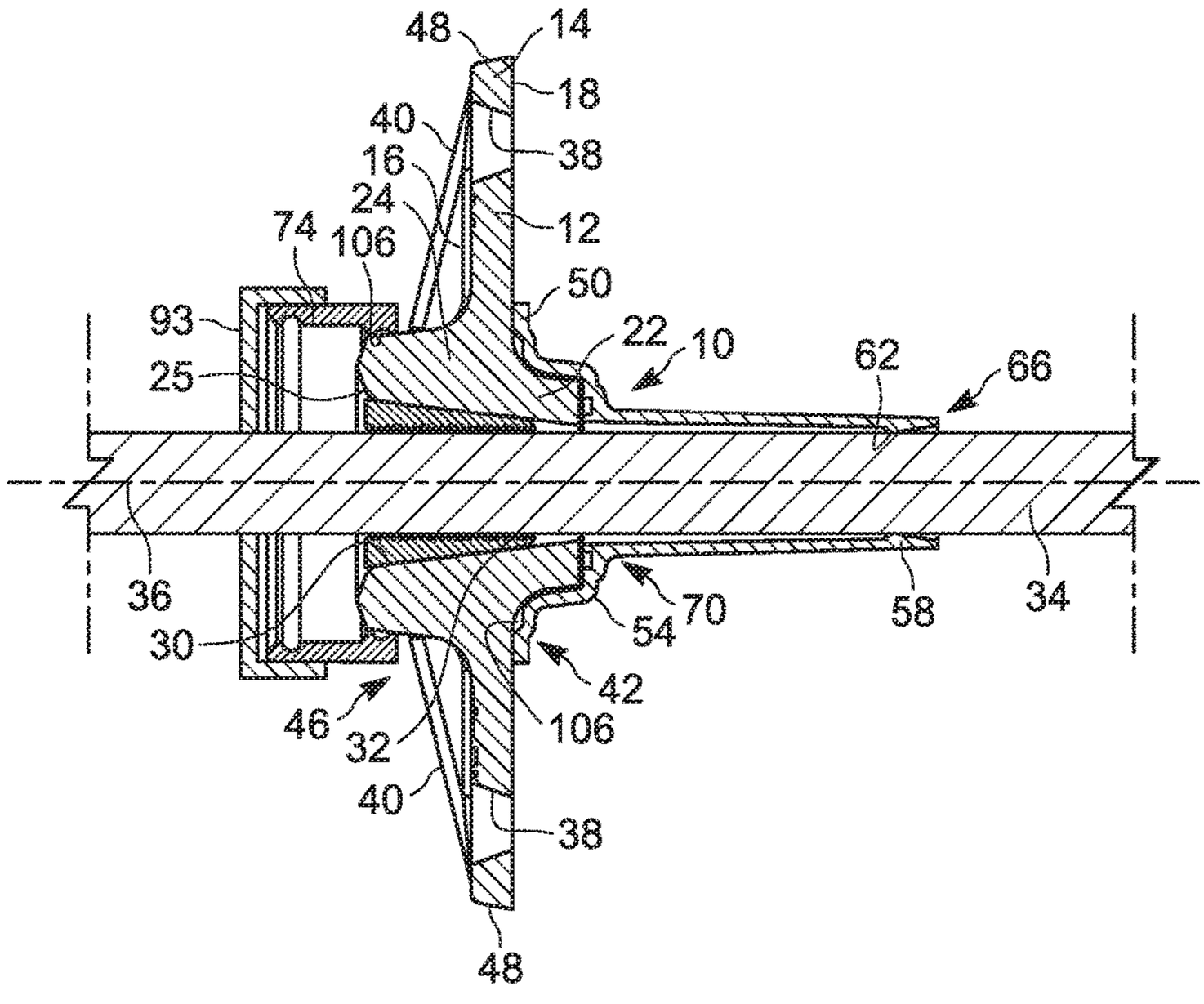
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FIG. 2

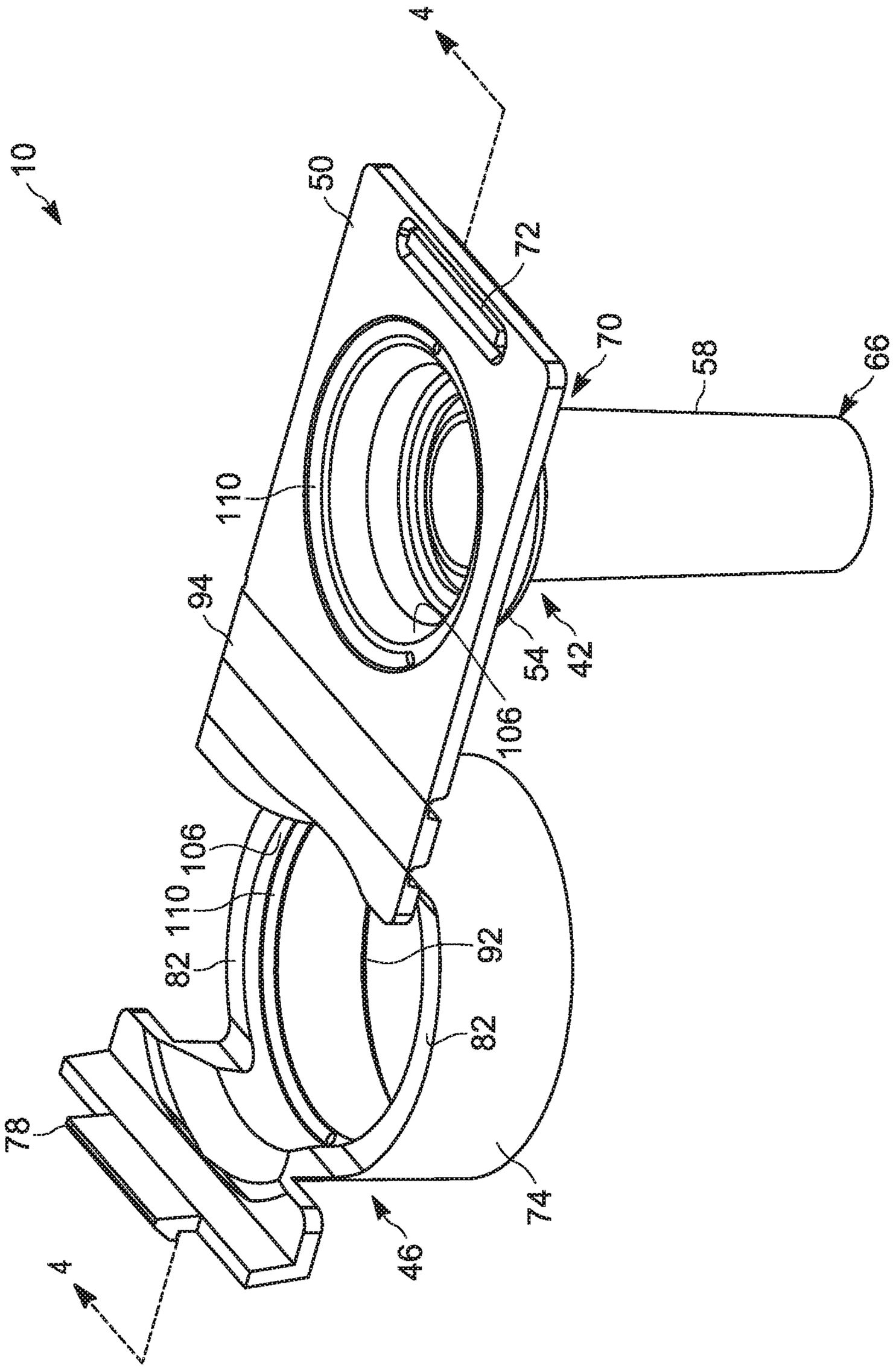


FIG. 3

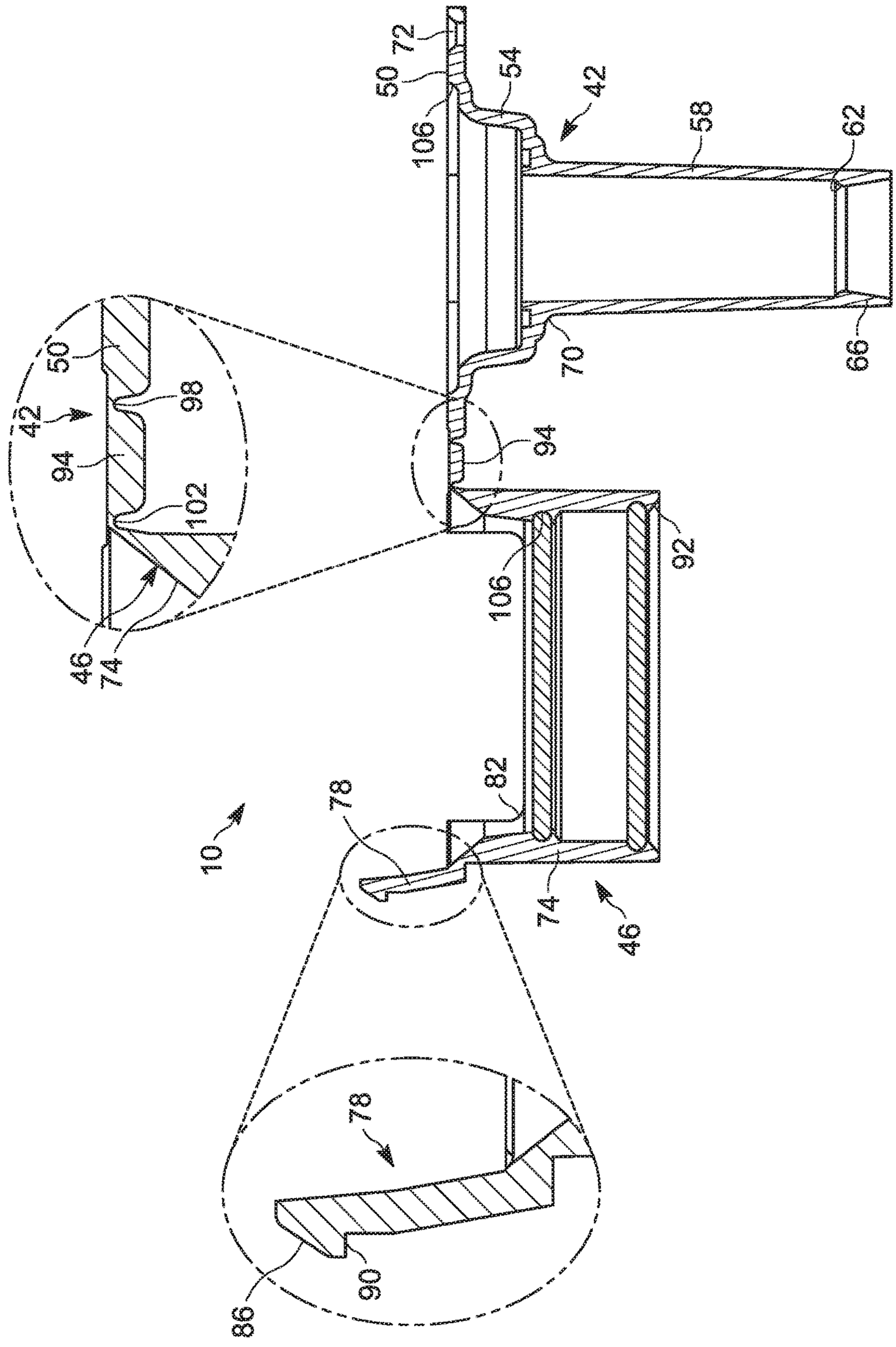


FIG. 4

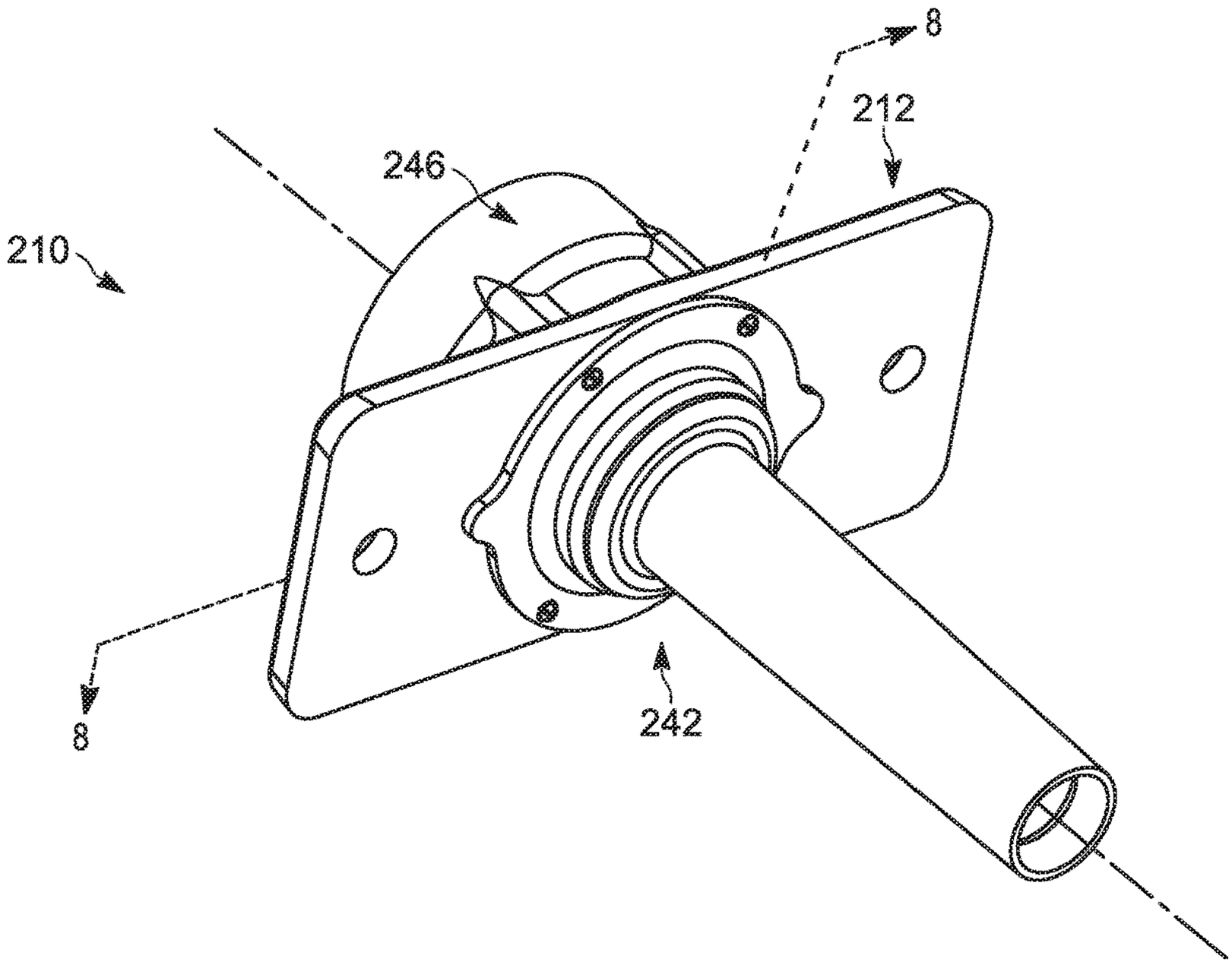


FIG. 5

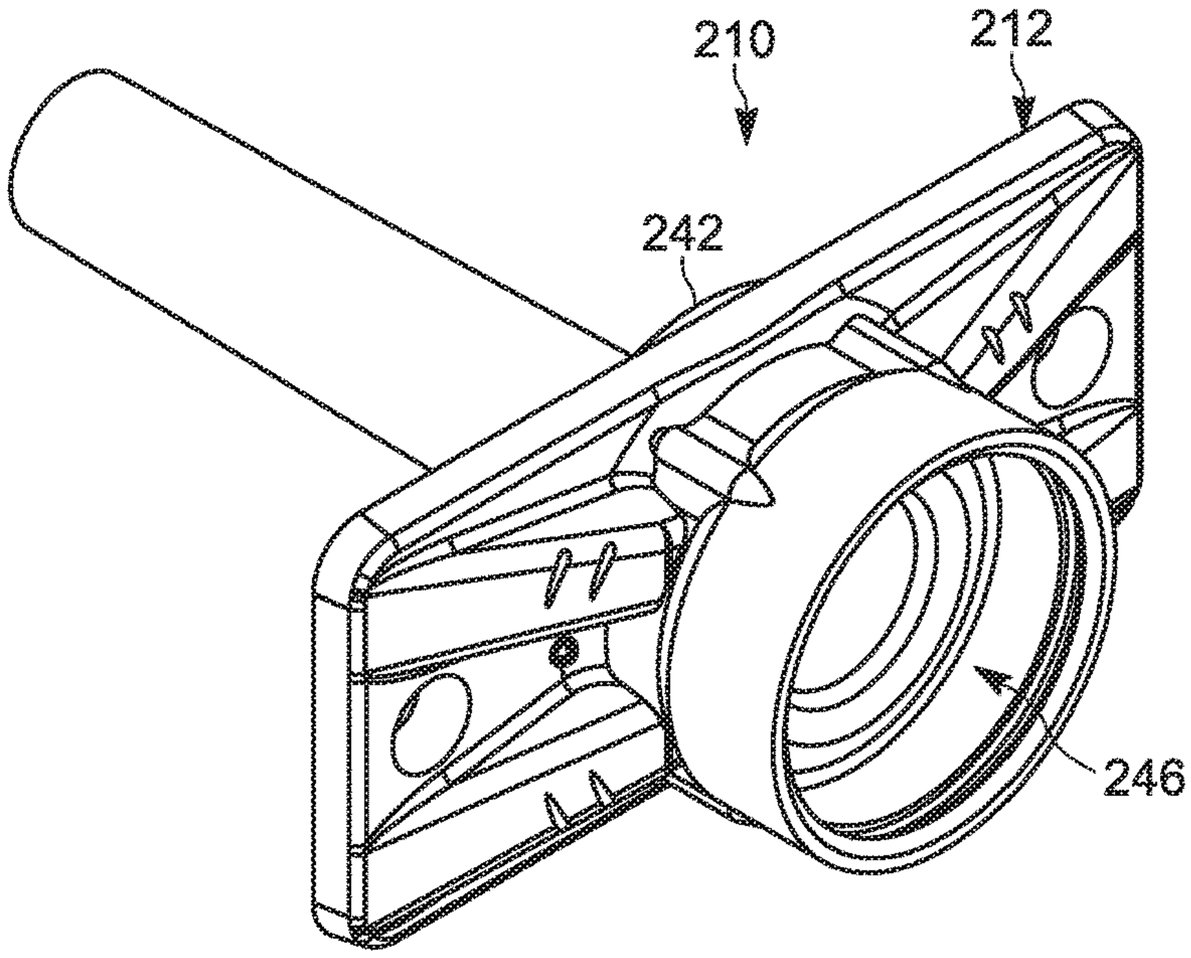


FIG. 6

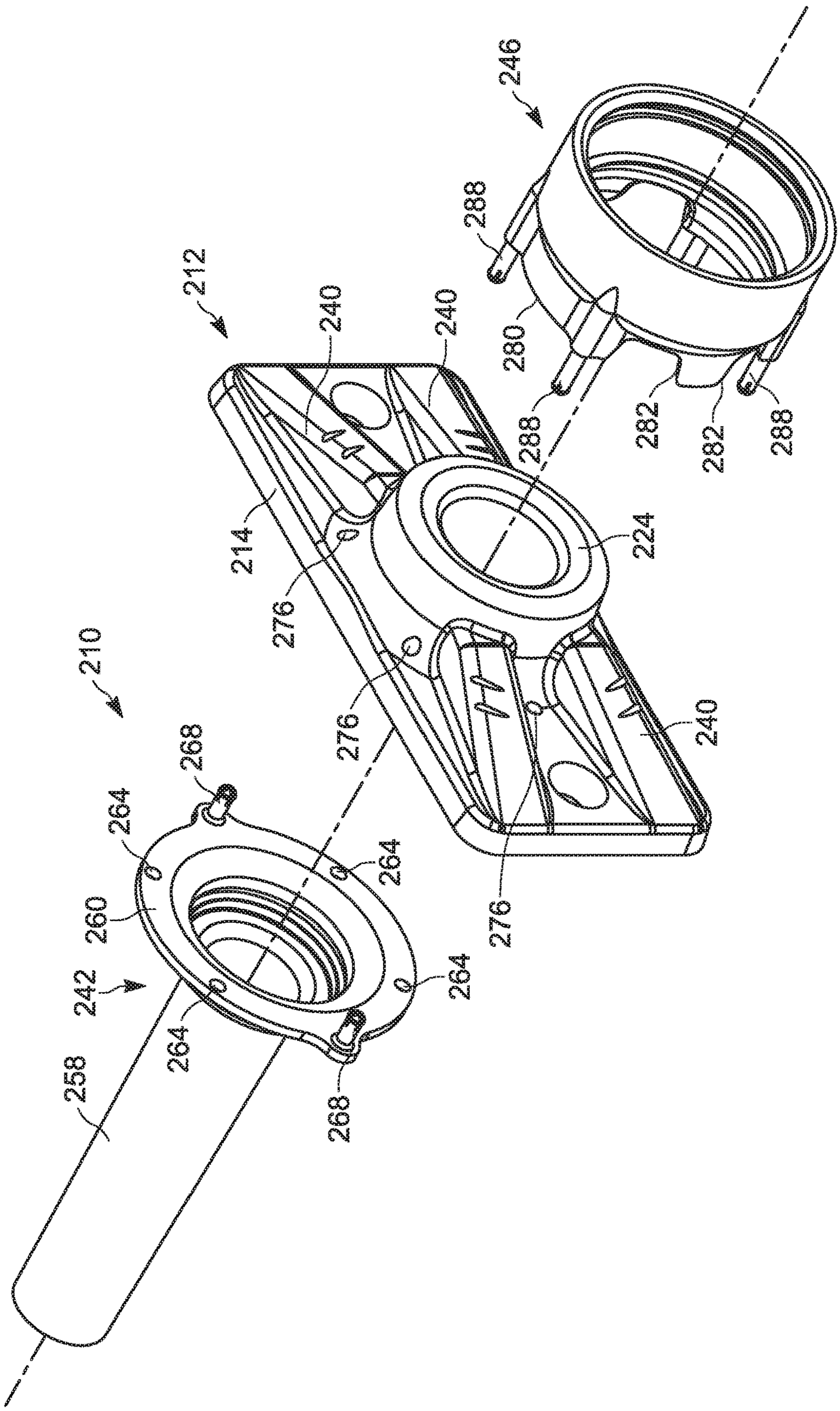
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FIG. 7

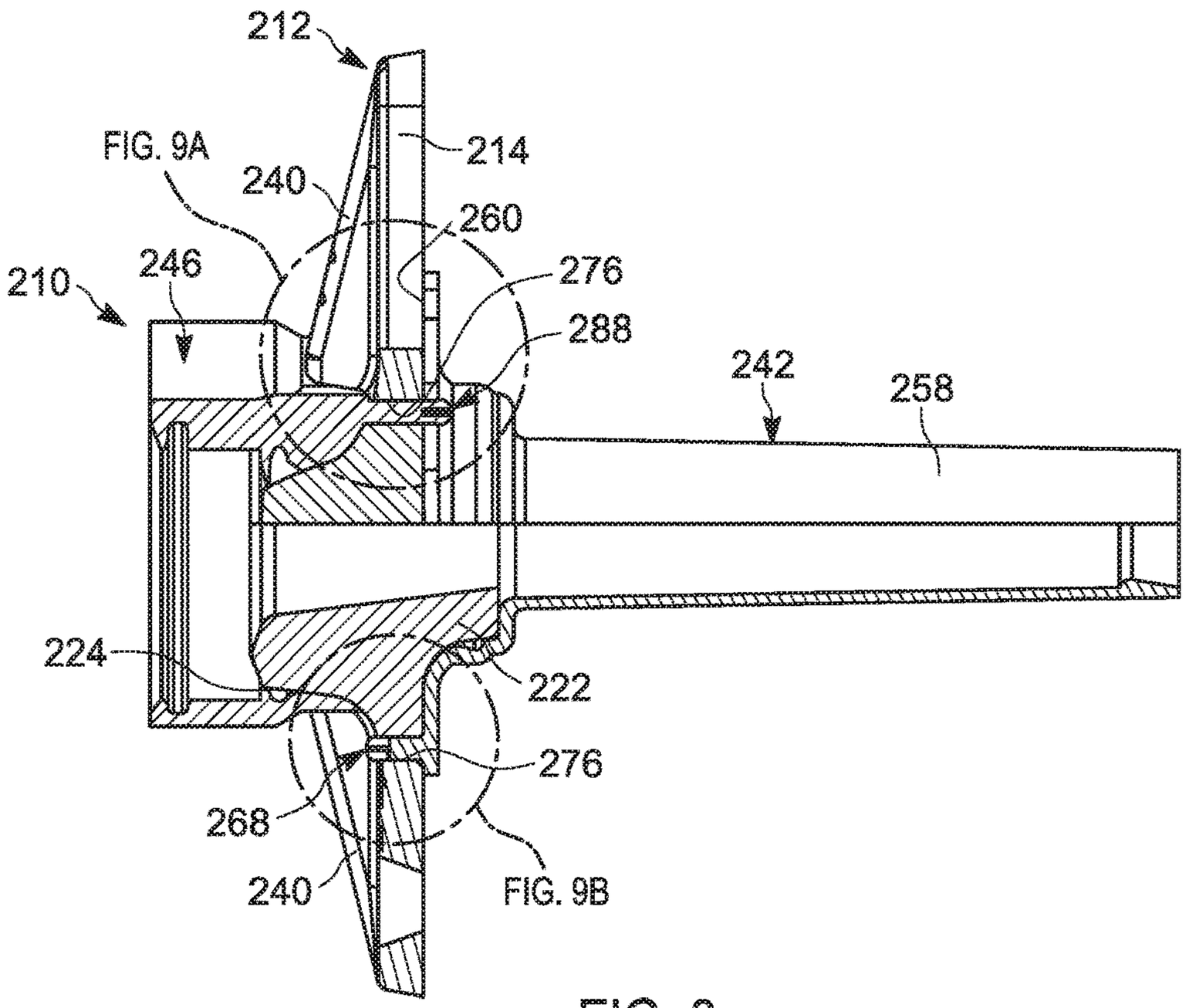


FIG. 9A FIG. 9B

FIG. 8

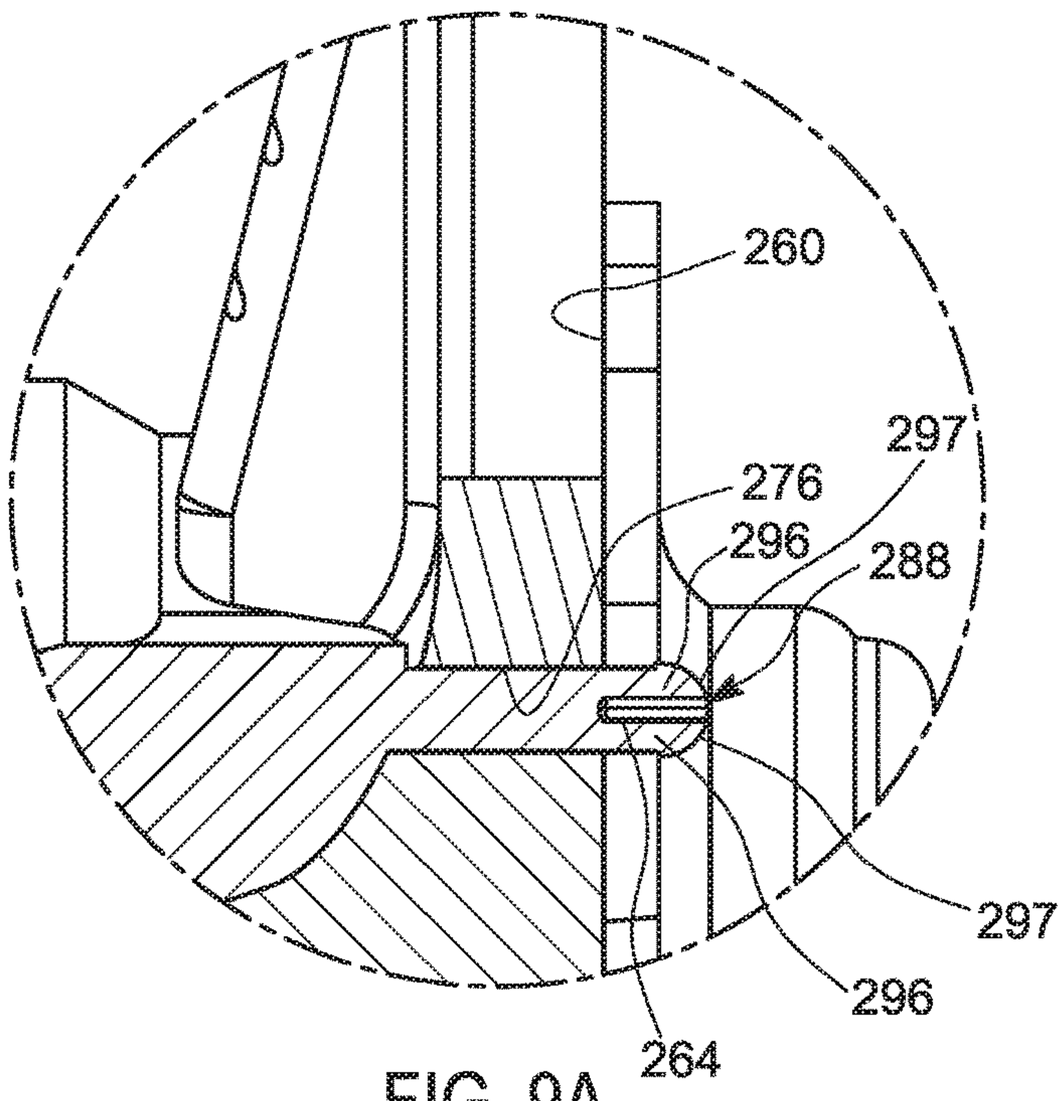


FIG. 9A

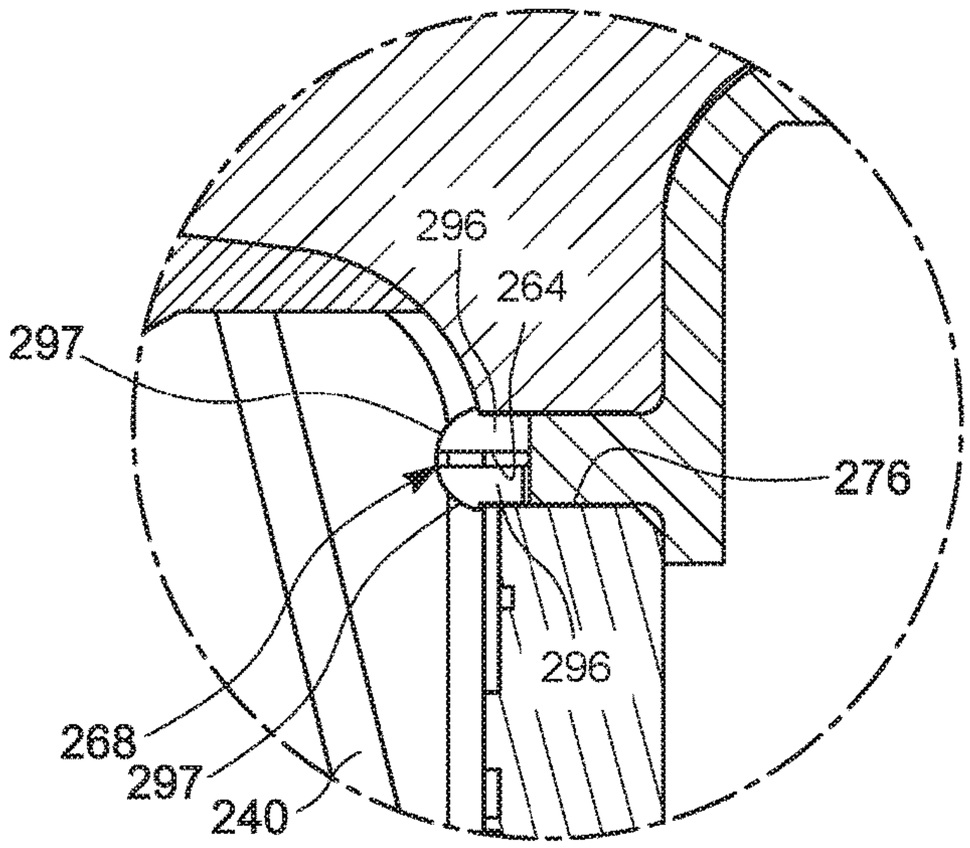
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FIG. 9B

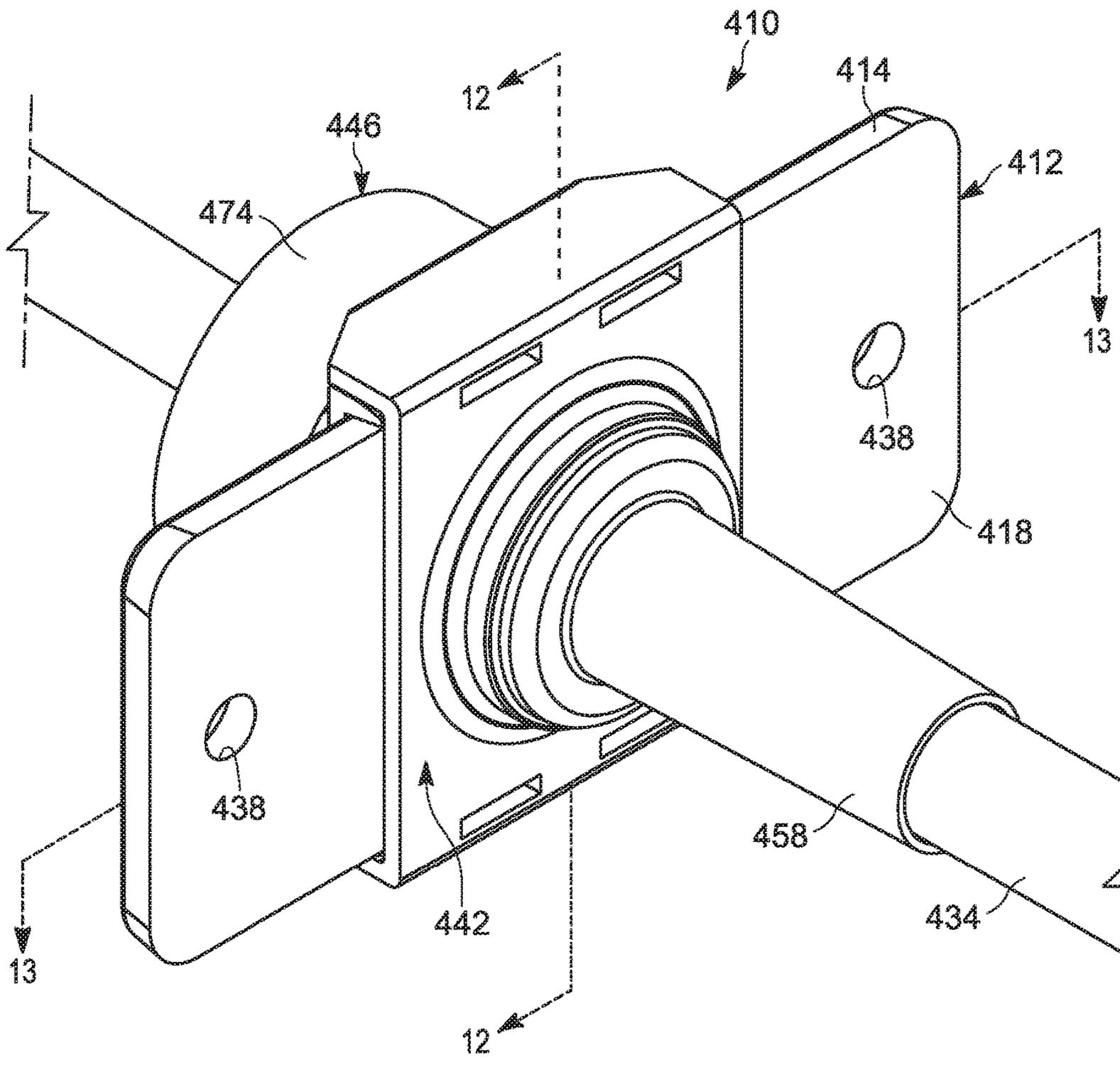
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FIG. 10

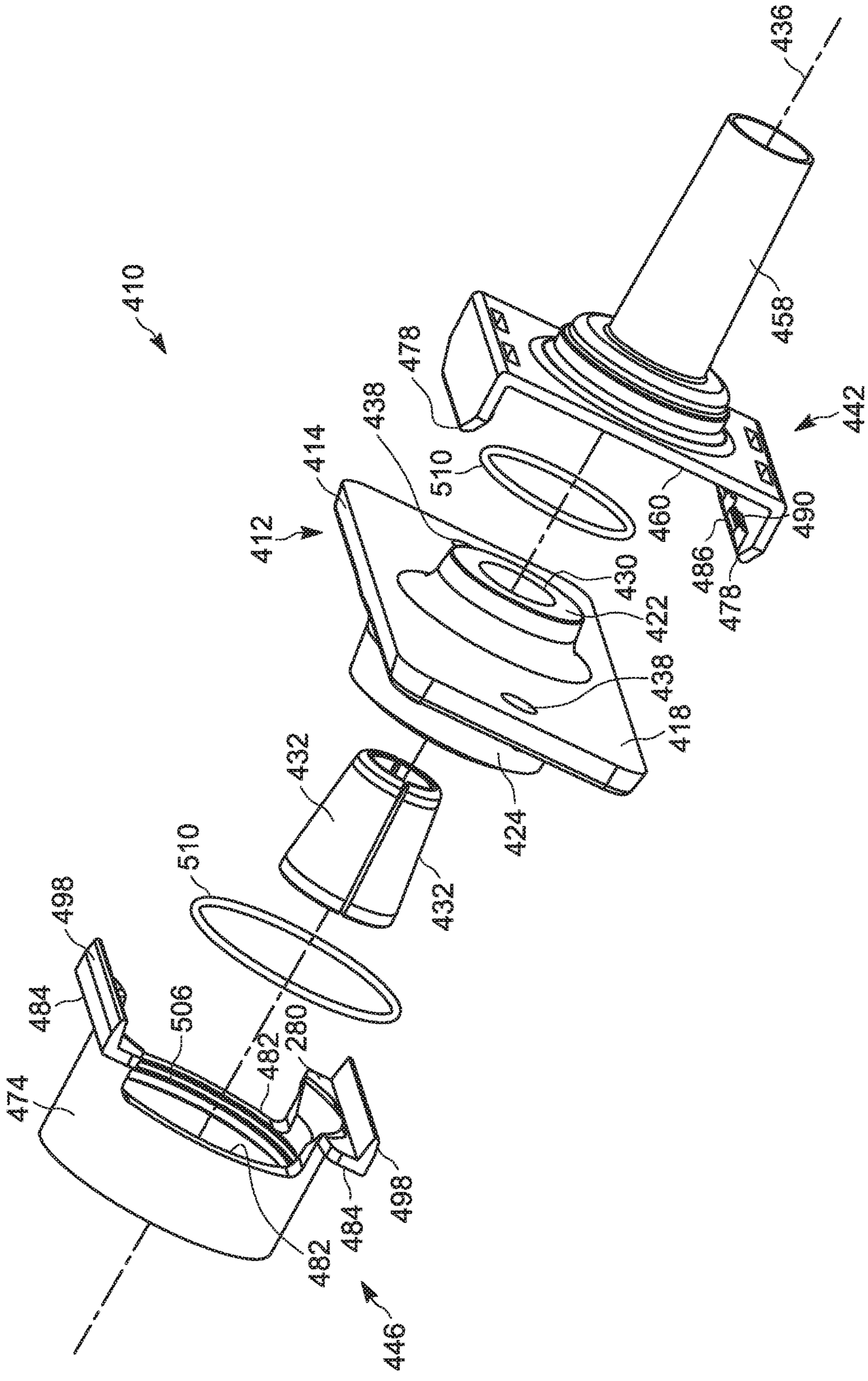
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FIG. 11

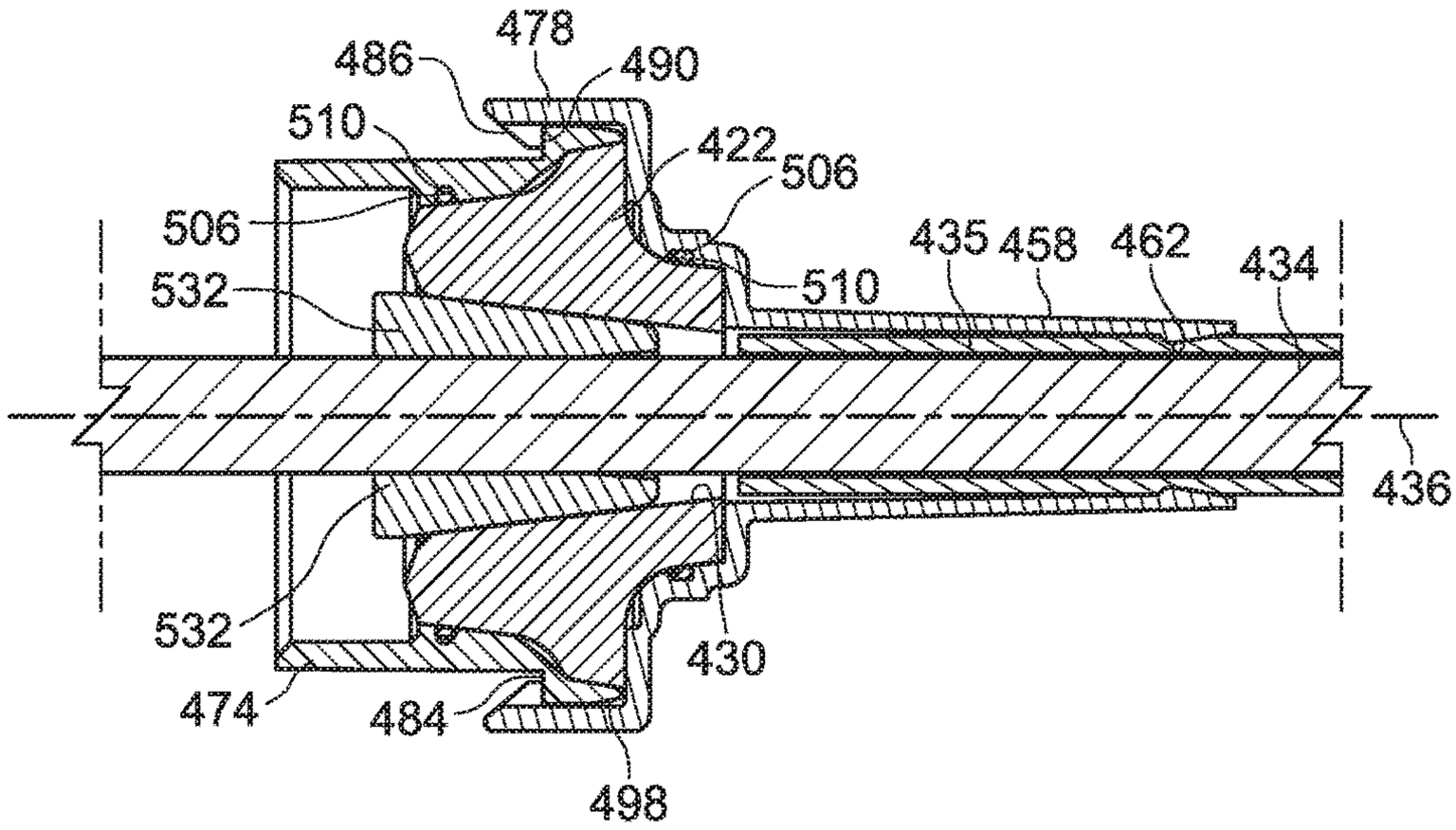
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FIG. 12

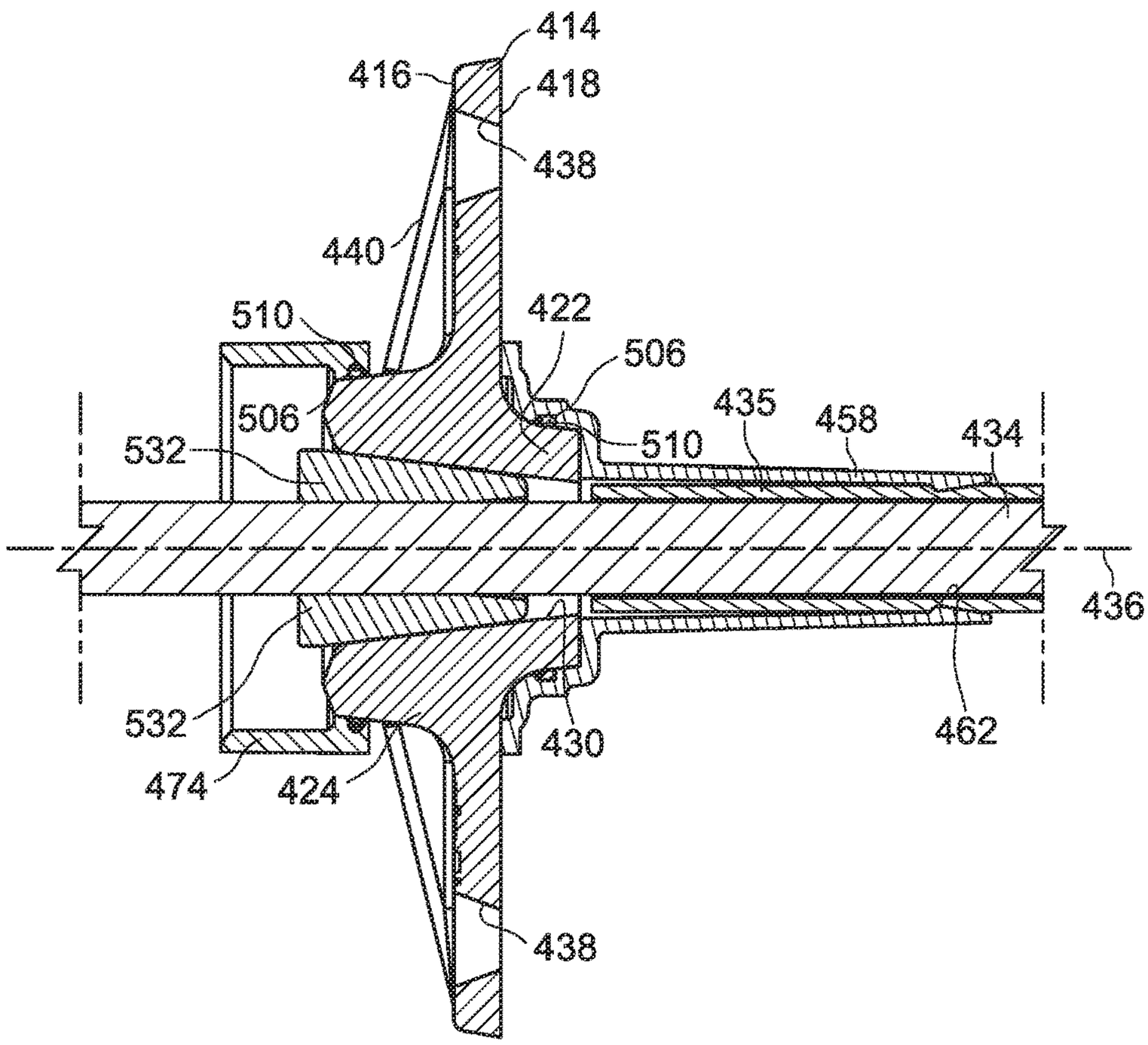
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FIG. 13

# SEALING COVER FOR CONCRETE ANCHOR

## CROSS-REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of prior-filed, U.S. Provisional Patent Application No. 62/491,725, filed Apr. 28, 2017, the entire contents of which are incorporated by reference herein.

## FIELD

The present application relates to anchors for reinforced concrete, and particularly to a sealing cover for an anchor of a concrete reinforcement system.

## BACKGROUND

Concrete is capable of withstanding significant compressive loads, but is more susceptible to failure when subjected to tensile loads. Thus, concrete structures are often reinforced with steel bars, cables, or similar to enhance the structure's ability to withstand tensile forces.

## SUMMARY

In one aspect, a cover is provided for sealing a concrete anchor including a flange and a bore extending through the flange. The bore defines an axis and the flange has a first side and a second side. The cover includes a first cover portion for covering a portion of the anchor proximate the first side of the flange, a second cover portion for covering a portion of the anchor proximate the second side of the flange, and a latch for coupling the first cover portion and the second cover portion together with the anchor disposed between the latch.

In another aspect, a cover is provided for sealing a concrete anchor including a flange and a bore extending through the flange. The bore defines an axis and the flange has a first side and a second side. The cover includes a first cover portion for covering a portion of the anchor proximate the first side of the flange, a second cover portion for covering a portion of the anchor proximate the second side of the flange, and at least one latch for releasably coupling the first cover portion to the second cover portion.

In yet another aspect, a concrete anchor is provided and includes a flange having a first side and a second side, and a bore extending through the flange. The bore defines an axis. The anchor further includes a first cover portion for covering a portion of the anchor proximate the first side of the flange, a second cover portion for covering a portion of the anchor proximate the second side of the flange, and a latch for selectively maintaining the cover and the anchor together.

Independent features and independent advantages will become apparent to those skilled in the art upon review of the detailed description, drawings, and claims.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a perspective view of an anchor and a sealing cover.

FIG. **2** is a cross-sectional view of the sealing cover and the anchor of FIG. **1**, viewed along section **2-2**.

FIG. **3** is a perspective view of the sealing cover of FIG. **1** in a first position.



FIG. **4** is a cross-sectional view of the sealing cover of FIG. **3**, viewed along section **4-4**.

FIG. **5** is a perspective view of an anchor and a sealing cover according to another embodiment.

FIG. **6** is a reverse perspective view of the anchor and sealing cover of FIG. **5**.

FIG. **7** is an exploded view of the anchor and sealing cover of FIG. **5**.

FIG. **8** is a cross-sectional view of the anchor and cover of FIG. **5**, viewed along section **8-8**.

FIG. **9**A is an enlarged view of the sealing cover of FIG. **8**, viewed within area labeled FIG. **9**A.

FIG. **9**B is an enlarged view of the sealing cover of FIG. **8**, viewed within area labeled FIG. **9**B.

FIG. **10** is a perspective view of an anchor and a sealing cover according to another embodiment.

FIG. **11** is an exploded view of the anchor and sealing cover of FIG. **10** and wedge members.

FIG. **12** is cross-sectional view of the anchor and cover of FIG. **10**, viewed along section **12-12**, with wedges securing a tendon.

FIG. **13** is cross-sectional view of the anchor and cover of FIG. **10**, viewed along section **13-13**, with wedges securing the tendon.

## DETAILED DESCRIPTION

Before any independent embodiments are explained in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of components set forth in the following description or illustrated in the following drawings. The invention is capable of other independent embodiments and of being practiced or of being carried out in various ways. Also, it is to be understood that the phraseology and terminology used herein is for the purpose of description and should not be regarded as limiting.

The use of "including", "comprising", or "having" and variations thereof herein is meant to encompass the items listed thereafter and equivalents thereof as well as additional items. Unless specified or limited otherwise, the terms "mounted", "connected", "supported", and "coupled" and variations thereof are used broadly and encompass both direct and indirect mountings, connections, supports, and couplings. Further, "connected" and "coupled" are not restricted to physical or mechanical connections or couplings.

FIGS. **1** and **2** illustrate a sealing device or cover **10** for an anchor **12**. The anchor **12** of the illustrated embodiment secures a tensioned cable or tendon **34** (FIG. **2**) for reinforcing a concrete slab. The anchor **12** includes a body including a flange portion **14** having a front surface **16** and a rear surface **18**. The rear surface **18** provides a bearing surface abutting a portion of the concrete slab (not shown) while tension is applied to the tendon **34**. In the illustrated embodiment, the body also includes a button portion **22** that extends from the rear surface **18** of the flange **14** and a nose portion **24** that extends from the front surface **16** of the flange **14**. The nose portion **24** may include a seating surface **25** (e.g., for engaging a hydraulic jack tensioner (not shown) during tensioning of the tendon **34**). In the illustrated embodiment, the anchor **12** is formed as a unitary component via casting, forging, or other suitable process. The anchor **12** can be formed from a metallic material, such as cast steel or ductile iron.

As shown in FIGS. **1** and **2**, the flange **14** may have a rectangular shape, and the button portion **22** and the nose

portion **24** may both be centered on the flange **14**. The flange **14** extends laterally from the nose portion **24** and the button portion **22** to opposite distal edges **48** on the lateral sides of the nose portion **24** and the button portion **22** and to opposite proximal edges **49** on the vertical sides of the nose portion **24** and the button portion **22**. In the illustrated embodiment, the anchor **10** also includes ribs **40** (FIG. **2**) extending between the nose portion **24** and the front surface **16** of the flange portion **14**.

Referring to FIG. **2**, the anchor **12** includes a wedge cavity or bore **30** that extends through the nose portion **24**, the flange portion **14**, and the button portion **22**. The tendon **34** extends through the bore **30**. The bore **30** extends along a bore axis **36**, and the bore **30** is tapered along the axis **36** from the nose portion **24** to the button portion **22**. That is, a diameter of the bore **30** proximate the nose portion **24** is larger than the diameter proximate the button portion **22**. The bore **30** receives two wedge members **32**, each of which has an outer surface that abuts against the tapered bore **30** and an inner surface that engages or clamps onto an outer surface of the tendon **34**. The wedge members **32** are positioned between the outer surface of the tendon **34** and the tapered bore **30**, thereby securing the tendon **34** relative to the anchor **12**.

In the illustrated embodiment, the anchor **12** also contains holes **38** extending through the flange portion **14**. Two holes **38** are shown in FIGS. **1** and **2**, but other embodiments may include fewer or more holes **38**. The holes **38** may receive a fastener for securing the anchor **10** to the concrete slab or into a form board (not shown). In other embodiments, the anchor **12** may be free of any mounting holes **38** altogether and may be attached to the concrete slab or form board by other means.

Referring to FIGS. **1** and **3**, the sealing cover **10** is coupled to the concrete anchor **12** to seal at least a portion of the anchor **12** from the concrete and liquids/additives entrained within the concrete, thereby inhibiting corrosion of the anchor **12**. In the illustrated embodiment, the sealing cover **10** encapsulates and seals the button portion **22**, the nose portion **24**, the bore **30**, and the wedge members **32**, preventing these portions from being exposed to the concrete and liquids/additives therein. The cover **10** of the illustrated embodiment is formed as a unitary component via a single casting, molding, or other suitable process. The sealing cover **10** is preferably formed of plastic (e.g., nylon, polyethylene, ABS, PVC, etc.).

As shown in FIG. **3**, the sealing cover **10** generally includes a first cover portion or button-side cover **42** and a second cover portion or nose-side cover **46** pivotably coupled to the button-side cover **42**. The button-side cover **42** includes a planar portion **50**, a button housing **54** extending away from the planar portion **50**, and a tube **58** extending away from the button housing **54**. The button housing **54** covers the button portion **22** (FIG. **2**) of the anchor **12** while the tube **58** encloses a portion of the tendon **34** extending from the button portion **22** of the anchor **12**. The tube **58** includes an annular ridge **62** (FIG. **2**) extending radially inward toward the tendon **34**. The annular ridge **62** contacts the tendon **34** or an intermediate tendon sheath (not shown) to inhibit concrete and liquid/additives therein from contacting the tendon **34**. The annular ridge **62** may be positioned at a distal end **66** of the tube **58** opposite a connecting end **70** adjacent the button housing **54**. The button-side cover **42** further includes an elongated slot **72** formed through the planar portion **50** for selectively receiving a portion of the nose-side cover **46**, as described in more detail below.

Referring again to FIG. **3**, the nose-side cover **46** includes a nose housing **74** and a latch **78**. The nose-side cover **46** is formed as a cylinder to cover the nose portion **24**. The nose-side cover **46** may include cutouts **82** to avoid interfering with the ribs **40** of the anchor **12** when the sealing cover **10** is coupled to the anchor **12**. The latch **78** is a hook-type latch that is engageable with the elongated slot **72** of the button-side cover **42** via an interference fit. As shown in FIG. **4**, the latch **78** includes a cam surface **86** and a shoulder **90**. The latch **78** elastically deflects from a first position (as shown in FIGS. **3** and **4**) toward a second position (e.g., radially inwardly) when a sufficient force acts on the cam surface **86** as a result of the cam surface **86** contacting an edge of the elongated slot **72**. Once the latch **78** is inserted a proper distance through the elongated slot **72**, the latch **78** returns toward the first position until the shoulder **90** extends entirely through the slot **72** and rests against the planar portion **50**.

Referring again to FIG. **3**, the nose housing **74** further includes an aperture **92** allowing access to the anchor **12** during installation periods. The aperture **92** is appropriately shaped so the seating surface **25** of the nose portion **24** can be engaged by a hydraulic jack tensioner during the tensioning of the tendon **34**. Once tensioning is complete, the aperture **92** may be closed via a removable cap **93** (FIG. **2**), or an intermediate tendon coupler may be positioned adjacent the nose portion **24**. In the illustrated embodiment, the cap **93** is a grease-cap. In other embodiments, the cap **93** may be another type of cap or closure member.

As shown in FIG. **4**, the sealing cover **10** further includes a hinge disposed between and interconnecting the button-side cover **42** and the nose-side cover **46**. The hinge includes two thin zone joints **98**, **102** (sometimes referred to as a living hinge) that enable the button-side and nose-side covers **42**, **46** to move relative to each other. A first thin zone joint **98** is disposed between a hinge member **94** and the button-side cover **42**, thereby allowing the button-side cover **42** to pivot relative to the hinge member **94**. A second thin zone joint **102** is disposed between the hinge member **94** and the nose-side cover **46**, thereby allowing the hinge member **94** to pivot relative to the nose-side cover **46**. As such, the button-side cover **42** is moveable relative to the nose-side cover **46** between a first position (as shown in FIG. **3**) and a second position (as shown in FIG. **1**). In the first position, the button-side cover **42** is released from the nose-side cover **46** in order to receive the anchor **12**. In the second position, the button-side cover **42** and the nose-side cover **46** are coupled together via the latch **78** and slot **72** arrangement, thereby encapsulating portions of the anchor **12**.

Referring to FIGS. **2-4**, in the illustrated embodiment, the sealing cover **10** further includes grooves **106** for receiving a sealing member **110** (e.g., an adhesive, sealant, O-ring, etc.) to provide a bond and seal between the sealing cover **10** and the anchor **12** (FIG. **3**). When the sealing cover **10** is in the first position, the sealing member **110** bonds the anchor **12** and sealing cover **10** together to provide a liquid-tight seal between the sealing cover **10** and the anchor **12**. As a result, the sealing cover **10** provides corrosion protection for the encapsulated portions of the anchor **12** (e.g., the button portion **22**, the nose portion **24**, the bore **30**, and the wedge member **32**).

During assembly, the nose portion **24** is positioned within the nose-side cover **46** while the sealing cover **10** is in the second position. The button-side cover **42** is pivoted about the hinge and the nose-side cover **46** until the sealing cover **10** is in the first position and the latch **78** engages the elongated slot **72**. The sealing member **110** forms a liquid-

tight seal between the sealing cover **10** and the anchor **12**. The tendon **34** passes through the tube **58** of the button-side cover **42**, the bore **30** of the anchor **12**, and through the nose housing **74** of the nose-side cover **46**. The anchor **12** may be secured against a concrete slab or form board (e.g., by passing fasteners through the holes **38**) and the tendon **34** (FIG. **2**). The tendon **34** (FIG. **2**) is tensioned and the wedge members **32** are positioned in the bore **30** to secure the tendon **34** relative to the anchor **12**.

In the illustrated embodiment, the sealing cover **10** provides corrosion-protection primarily for the wedge cavity **30**, with the lateral edge portions of the flange portion **14** being uncovered. The cover **10** may therefore protect at least the critical anchorage zone of the assembly against corrosion or deterioration caused by chemical interactions between the metallic anchor **12** and the water or additives in the concrete. In some embodiments, the edge portions of the anchor **12** are permitted to patina naturally. The sealing cover **10** can be economically manufactured as a separate piece from the anchor **12** via a molding process, thereby avoiding an expensive process of insert molding a cover around the anchor **12**. The sealing cover **10** may be coupled to conventional anchors.

FIGS. **5-9** illustrate a sealing cover **210** according to another embodiment. As shown in FIGS. **5-7**, the cover **210** includes a first cover portion or button-side cover **242** and a second cover portion or nose-side cover **246**. As shown in FIGS. **7** and **8**, the button-side cover **242** includes a tube **258** and an end surface **260** abutting a side of the anchor flange **214** adjacent the button portion **222** (FIG. **8**). Referring to FIG. **7**, the button-side cover **242** further includes holes **264** spaced apart along the perimeter of the end surface and a pair of button cover retainers **268** extending from opposite sides of the end surface **260**. In the illustrated embodiment, the button-side cover **242** includes four holes **264** and two button cover retainers **268**; in other embodiments, the button-side cover **242** may include fewer or more holes and/or fewer or more button cover retainers. Each hole **264** and each button cover retainer **268** is aligned with an opening **276** extending through the flange **214**. In the illustrated embodiment, each button cover retainer **268** extends through an associated opening **276** and secures the button-side cover **242** to the flange **214**.

As shown in FIGS. **7-9**, the nose-side cover **246** includes an end surface **280** and cutouts **282** positioned along the perimeter of the end surface **280**. Each cutout **282** receives a rib **240** of the anchor **12**. In addition, the nose-side cover **246** includes four nose cover retainers **288** extending from the end surface **280** of the nose-side cover **246**. Each nose cover retainer **288** is aligned with and extends through an associated opening **276** to secure the nose-side cover **246** to the flange **214**. In the illustrated embodiment, the nose-side cover **246** includes four nose cover retainers **288**; in other embodiments, the nose-side cover **246** may include fewer or more nose cover retainers. Referring to FIG. **9**, in the illustrated embodiment, each nose cover retainer **288** also extends through an associated hole **264** of the button-side cover **242**, thereby securing the nose-side cover **246** to the button-side cover **242**.

As best shown in FIGS. **9**A and **9**B, in the illustrated embodiment, each button cover retainer **268** (FIG. **9**B) and each nose cover retainer **288** (FIG. **9**A) includes a plurality of cantilevered portions **296**, and each cantilevered portion has a hook **297**. As the retainers **268**, **288** are inserted into their respective openings **276** in the anchor **12**, the cantilevered portions **296** deflect inwardly. Once the hooks **297** protrude from the opposite side the cantilevered portions **296** deflect outwardly, forming a snap-fit connection. In other embodiments, the retainers **268**, **288** may have a different structure, and/or the button-side cover **242** and the nose-side cover **246** may be retained in a different manner.

FIGS. **10-13** illustrate a sealing device or cover **410** for an anchor **412** according to another embodiment. The anchor **412** secures a tensioned cable or tendon **434**. The anchor **412** includes a body including a flange portion **414** having a front surface **416** and a rear surface **418**. The rear surface **418** provides a bearing surface abutting a portion of the concrete slab (not shown) while tension is applied to the tendon **434**. As shown in FIG. **11**, the body also includes a button portion **422** that extends from the rear surface **418** of the flange **414** and a nose portion **424** that extends from the front surface **416** of the flange **414**. As shown in FIGS. **10** and **11**, the flange **414** may have a rectangular shape, and the button portion **422** and the nose portion **424** may both be centered on the flange **414**. The anchor **410** also includes ribs **440** (FIG. **13**) extending between the nose portion **424** and the front surface **416** of the flange portion **414**.

Referring to FIG. **11**, the anchor **412** includes a wedge cavity or bore **430** that extends through the nose portion **424**, the flange portion **414**, and the button portion **422**. As shown in FIG. **12**, the tendon **434** extends through the bore **430**. The bore **430** extends along a bore axis **436**, and the bore **430** is tapered along the axis **436** from the nose portion **424** to the button portion **422**. That is, a diameter of the bore **430** proximate the nose portion **424** is larger than the diameter proximate the button portion **422**. In the illustrated embodiment, the bore **430** receives two wedge members **432**, and each of the wedge members has an outer surface that abuts against the tapered bore **430** and an inner surface that engages or clamps onto an outer surface of the tendon **434**. The wedge members **432** are positioned between the outer surface of the tendon **434** and the tapered bore **430**, thereby securing the tendon **434** relative to the anchor **412**.

In the illustrated embodiment, the anchor **412** also contains holes **438** extending through the flange portion **414**. The holes **438** may receive a fastener for securing the anchor **410** to the concrete slab or into a form member (not shown). In other embodiments, the anchor **412** may include fewer or more than two holes **438**, or may be free of any mounting holes **438** altogether and may be coupled to the concrete slab or form member by other means.

As shown in FIGS. **10-13**, the cover **410** includes a first or button-side cover **442** and a second or nose-side cover **446**. As shown in FIG. **11**, the button-side cover **442** includes a tube **458** and a planar portion **450** abutting the second side **418** of the anchor flange **414** adjacent the button portion **422**. The button-side cover **442** covers the button portion **422** of the anchor **412** while the tube **458** encloses a portion of the tendon **434** extending from the button portion **422** of the anchor **412**. The tube **458** includes an annular ridge **462** (FIG. **12**) extending radially inward toward the tendon **434**. The annular ridge **462** contacts the tendon **434** or an intermediate tendon sheath **435** to inhibit concrete and liquid/additives therein from contacting the tendon **434**.

The button-side cover **442** further includes first and second latches **478** extending away from the planar portion **450** in a direction parallel to the axis **436**. The latches **478** are hook-type latches that are engageable with the nose-side cover **446** via an interference fit, as described in further detail below. As shown in FIGS. **11** and **12**, each latch **478** includes a cam surface **486** and a shoulder **490**. Each latch **478** elastically deflects from a first position (as shown in FIGS. **11** and **12**) to a second position (e.g., radially out-

ward) when a sufficient force acts on the cam surface **486** as a result of the cam surface **486** contacting an edge of the nose-side cover **446**.

As shown in FIGS. **10-13**, the nose-side cover **446** includes a nose housing **474** that is formed as a cylinder to cover the nose portion **424**. The nose-side cover **446** includes an end surface **280** and cutouts **482** positioned along the perimeter of the end surface **480**. Each cutout **482** receives a rib **440** of the anchor **412**. In addition, the nose-side cover **246** includes latch-engaging features (e.g., shoulders **484**) and cam surfaces **498**. The shoulders **484** and the cam surfaces **498** are configured to interact with the corresponding latches **478** of the button-side cover **442**. Specifically, when the latches **478** contact the nose-side cover **446**, the cam surfaces **486** of the latches **478** slide against the cam surfaces **498** of the nose-side cover **446** forcing the latches **478** to rotate radially outward. Once the latches **478** slide against the nose-side cover **446** a proper distance, the latches **478** returns toward the first position where the shoulders **490** of the latches **478** mate with the corresponding shoulders **484** of the nose-side cover **446**, thereby locking the button-side cover **442** to the nose-side cover **446**.

In the illustrated embodiment, each latch **478** is formed on the button-side cover **442** and each latch-engaging feature or shoulder **484** is formed on the nose-side cover **446**. It is understood that other constructions may include one or both latches formed on the nose-side cover **446** and one or both latch-engaging features/shoulders formed on the button-side cover **442**.

The sealing cover **410** further includes grooves **506** for receiving a sealing member **510** (e.g., an O-ring) to provide a bond and seal between the sealing cover **410** and the anchor **412** (FIG. **11**). When the nose-side cover **446** is coupled to the button-side cover **442**, the sealing member **510** provides a liquid-tight seal between the sealing cover **410** and the anchor **412**. As a result, the sealing cover **410** provides corrosion protection for the encapsulated portions of the anchor **412** (e.g., the button portion **422**, the nose portion **424**, the bore **430**, and the wedge member **432**).

During assembly, the nose portion **424** is positioned within the nose-side cover **446** while button-side cover **442** is spaced away from the button portion **422**. The button-side cover **442** is moved along the axis **436** until the latches **478** engage the shoulders **484**. The tendon **434** passes through the tube **458** of the button-side cover **442**, the bore **430** of the anchor **412**, and through the nose housing **474** of the nose-side cover **446**. The anchor **412** may be secured against a concrete slab or form board (e.g., by passing fasteners through the holes **438**) and the tendon **434**. The tendon **434** is tensioned and the wedge members **432** are positioned in the bore **430** to secure the tendon **434** relative to the anchor **412**.

In the illustrated embodiment, the sealing cover **410** provides corrosion-protection primarily for the wedge cavity **430**, with the lateral edge portions of the flange portion **414** being uncovered. The cover **410** may therefore provide protection for at least a portion of the anchorage zone of the assembly against corrosion or deterioration caused by chemical interactions between the metallic anchor **412** and the water or additives in the concrete. In some embodiments, the edge portions of the anchor **412** are permitted to patina naturally.

The independent embodiments described above and illustrated in the figures are presented by way of example only and are not intended as a limitation upon the concepts and principles of the present invention. As such, it will be appreciated that various changes in the elements and their configuration and arrangement are possible without departing from the spirit and scope of the present invention. One or more independent advantages and/or independent features of the invention may be set forth in the claims.

What is claimed is:

**1**. A cover for sealing a concrete anchor, the concrete anchor including a flange, a nose portion, a button portion, and a bore extending through the flange, the bore defining an axis and the flange having a button side and a nose side, the cover comprising:

a button-side cover portion configured to cover the button portion of the concrete anchor;

a nose-side cover portion configured to cover the nose portion of the concrete anchor; and

at least one latch for coupling the button-side cover portion to the nose-side cover portion with the flange disposed between the button-side cover portion and the nose-side cover portion;

wherein the button-side cover portion and the nose-side cover portion are moveable between a first position in which the button-side cover portion is released from the nose-side cover portion so as to receive the concrete anchor therebetween and a second position in which the button-side cover portion and the nose-side cover portion are coupled together via the at least one latch with the concrete anchor therebetween, so as encapsulate the button portion and the nose portion of the concrete anchor; and

wherein the button-side cover portion includes a sealing member forming a liquid-tight bond between the button-side cover portion and the portion of the concrete anchor proximate the button side of the flange, wherein the nose-side cover portion includes another sealing member forming a liquid-tight bond between the nose-side cover portion and the portion of the concrete anchor proximate the nose side of the flange.

**2**. The cover of claim **1**, further including a hinge disposed between the button-side cover portion and the nose-side cover portion and wherein the button-side cover portion is pivotably coupled to the nose-side cover portion.

**3**. The cover of claim **1**, wherein the at least one latch is integrally formed with at least one of the button-side and nose-side cover portions.

**4**. The cover of claim **3**, wherein one of the button-side and nose-side cover portions includes a slot for receiving and engaging the at least one latch and wherein the at least one latch further includes a cam surface capable of engaging the other of the button-side and nose-side cover portions to elastically displace the at least one latch from a first position to a second position allowing the slot to receive the at least one latch.

**5**. The cover of claim **1**, wherein the button-side cover portion and the nose-side cover portion are formed as separate components.

**6**. The cover of claim **5**, wherein the cover includes first and second latches and wherein the concrete anchor is captured between the first latch and the second latch.

**7**. The cover of claim **6**, wherein the first latch and the second latch each include a shoulder capable of engaging corresponding shoulders of one of the button-side and nose-side cover portions once the first and second latches move from the second position to the first position, thereby securing the button-side cover portion to the nose-side cover portion.

8. The cover of claim 7, wherein the first latch engages a shoulder of the nose-side cover portion and the second latch engages a shoulder of the nose-side cover portion simultaneously.

9. The cover of claim 1, wherein the button-side cover portion can be latched to the nose-side cover portion by moving the button-side cover portion in a direction parallel to the axis toward the nose-side cover portion.

10. The cover of claim 6 wherein the first latch and the second latch are positioned along opposite edges of the flange.

11. The cover of claim 10, further comprising a first latch-engaging feature and a second latch-engaging feature, the first latch-engaging feature engaging the first latch, the second latch-engaging feature engaging the second latch.

12. The cover of claim 11, further comprising a first cam surface and a second cam surface, the first cam surface capable of elastically displacing the first latch to permit the first latch to engage the first latch-engaging feature, the second cam surface capable of elastically displacing the second latch-engaging latch to permit the second latch to engage the second feature.

13. The cover of claim 5 wherein the at least one latch comprises at least one retainer extending from one of the button-side and nose-side cover portions, wherein the flange includes a hole therethrough, the location of the hole corresponding to the location of the retainer, and wherein the button-side and nose-side cover portions are coupled by passing the at least one retainer through the hole in the flange and engaging the other of the button-side and nose-side cover portions with the at least one retainer.

14. The cover of claim 1 wherein the concrete anchor further includes a nose extending from the nose side and a button extending from the button side and wherein the button-side cover portion includes a button housing and a tube extending away from the button housing, the tube being aligned with the axis.

15. The cover of claim 14 wherein the button housing covers the button of the concrete anchor and the tube is configured to enclose a portion of a tendon extending from the button.

16. The cover of claim 15 wherein the tube includes an annular ridge extending radially inward.

17. The cover of claim 14 wherein the nose-side cover portion includes a nose housing having an aperture therethrough, the aperture being aligned with the axis.

18. The cover of claim 1, further including a removable cap adapted to mechanically engage the nose-side cover portion and to close the aperture when engaged.

19. A cover for sealing a concrete anchor, the concrete anchor including a flange, and a bore extending through the flange, the bore defining an axis and the flange having a first side and a second side, the cover comprising:

a first cover portion configured to cover a portion of the first side of the flange;

a second cover portion configured to cover a portion of the second side of the flange anchor; and

at least one latch for coupling the first cover portion to the aft-second cover portion with a portion of the flange disposed between the first and second cover portions;

wherein the first cover portion and second cover portion are moveable between a first position in which the first cover portion is released from the second cover portion so as to receive the concrete anchor therebetween and a second position in which the first cover portion and the second cover portion are coupled together via the at least one latch with the concrete anchor therebetween; and

wherein each of the first and second cover portions includes a sealing member forming a liquid-tight bond between the respective cover portion and the portion of the concrete anchor proximate that cover portion.

20. The cover of claim 19 wherein the anchor further includes a nose extending from the second side and a button extending from the first side and wherein the first cover portion includes a button housing and a tube extending away from the button housing, the tube being aligned with the axis.

21. The cover of claim 20 wherein the button housing covers the button of the concrete anchor and the tube is configured to enclose a portion of a tendon extending from the button.

22. The cover of claim 21 wherein the tube includes an annular ridge extending radially inward.

23. The cover of claim 20 wherein the second cover portion includes a nose housing having an aperture therethrough, the aperture being aligned with the axis.

24. The cover of claim 23, further including a removable cap adapted to mechanically engage the second cover portion and to close the aperture when engaged.

25. The cover of claim 19 wherein at least one of the first and second cover portions includes a sealing member configured to form a seal between the cover and the concrete anchor when the first and second cover portions are coupled by the at least one latch.

26. The cover of claim 25 wherein each of the first and second cover portions includes a sealing member and a groove for receiving the sealing member.

27. The cover of claim 19 wherein the first cover portion and the second cover portion are formed as separate components and wherein the at least one latch comprises at least one retainer extending from one of the first and second cover portions, wherein the flange includes a hole therethrough, the location of the hole corresponding to the location of the at least one retainer, and wherein the first and second cover portions are coupled by passing the at least one retainer through the hole in the flange and engaging the other of the first and second cover portions with the retainer.

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